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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/613,719

07/03/2003

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B-113

4964

7590 10/03/2007  
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EXAMINER

JOHNSON, EDWARD M

ART UNIT

PAPER NUMBER

1754

MAIL DATE

DELIVERY MODE

10/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/613,719	<b>Applicant(s)</b> GINOSAR ET AL.	
	<b>Examiner</b> Edward M. Johnson	<b>Art Unit</b> 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20,22-31 and 38-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20,22-31 and 38-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-20, 22-31, and 38-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper 5,326,923 in view of Seapan et al., American Chemical Society publication.

Regarding claims 1 and 38, Cooper '923 discloses a method for regenerating catalysts comprising contacting the catalyst with a solvent to remove some portion of the reaction product residue adhering to the solid catalyst to recover the catalyst's initial activity (see abstract). Cooper further discloses the recycling the solvent as appropriate (see column 10, lines 27-28), which an ordinary artisan would remove the fouling agent to perform. Cooper '923 further discloses isobutylene (see column 9, line 35), isobutane (see column 9, lines 41-43 and 56-57) and benzene (see column 3, lines 64-65; column 5, lines 1-3; and

column 10, lines 61-63), which would be capable of transferring a hydride ion.

Cooper '923 fails to disclose reaction with at least some of the impurities.

Seapan discloses treatment with supercritical reactive and strong solvents (see page 81, last full paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the reaction of Seapan in the regeneration process of Cooper because Cooper refers to Seapan's disclosure of supercritical SO<sub>2</sub> to remove impurities (see Cooper's "Other Publications", and column 5, lines 56-66) and Cooper discloses his treatment with supercritical reactive and strong solvents to break down macromolecular structure (see page 81, last full paragraph).

Regarding claim 2, Cooper '923 discloses hydrocarbon conversion including alkylation (abstract).

Regarding claim 3, Cooper '923 discloses acidic functionality (see column 6, lines 33-34).

Regarding claim 4, Cooper '923 discloses isobutylene (see column 9, line 35).

Regarding claims 5 and 39, Cooper '923 discloses contacting the catalyst with a solvent to remove some portion of the

reaction product residue adhering to the solid catalyst to recover the catalyst's initial activity (see abstract).

Regarding claims 6, 11, 40-42, Cooper '923 discloses periodically introducing hydrogen (see column 5, lines 14-17) and purging the system (see Example 1), which would obviously, to one of ordinary skill, at least suggest pumping and reactivating outside the alkylation reactor and recycling after purification so as to separate the catalyst from the system in accordance with the disclosed purging.

Regarding claims 7-9, 18, Cooper '923 discloses isobutane and 750 psig (see column 9, lines 41-43 and 56-57).

Regarding claim 10, Cooper '923 discloses contacting catalyst with benzene (see column 3, lines 64-65; column 5, lines 1-3; and column 10, lines 61-63).

Regarding claims 12-17, 19, 20, 22-23, 26-31, and 43-44, Seapan discloses treatment with supercritical reactive and strong solvents (see page 81, last full paragraph), which would motivate an ordinary artisan to use an optimum critical temperature and pressure determined through routine experimentation.

Regarding claims 22 and 45-46, Cooper '923 discloses the recycling the solvent as appropriate (see column 10, lines 27-28), which an ordinary artisan would remove the fouling agent to

perform, and it would have been obvious to an ordinary artisan that a hydride ion has a lower molecular weight than the disclosed solvents of Cooper.

Regarding claims 24-25, Cooper '923 discloses zeolites and alumina (see abstract and background).

***Response to Arguments***

3. Applicant's arguments filed 5/18/07 have been fully considered but they are not persuasive.

It is argued that Cooper and Seapan... of claim 1. This is not persuasive because Seapan discloses supercritical treatment and the hydrocarbon reactivating agents of Cooper are hydride ion sources since they contain hydrogen atoms like the instantly disclosed hydrocarbon agents. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It is argued that similarly, the isobutylene... between -30°C and 50°C. This is not persuasive for the reasons above. Seapan discloses supercritical treatment.

It is argued that Seapan does not disclose... source of hydride ion. This is not persuasive because the hydrocarbon reactivating agents of Cooper are hydride ion sources since they

contain hydrogen atoms like the instantly disclosed hydrocarbon agents. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It is argued that the Examiner appears to rely on... of claim 1. This is not persuasive because the hydrocarbon reactivating agents of Cooper are hydride ion sources since they contain hydrogen atoms like the instantly disclosed hydrocarbon agents.

It is argued that however, Cooper's reference to Seapan... the claimed invention. This is not persuasive for the reasons above, and also because Applicant appears to further admit that it is "known in the art that solvents have different properties at noncritical conditions versus critical conditions". Thus, it would have been further obvious to an ordinarily skilled artisan to use either condition depending on the properties desired.

It is argued that claim 22 is further allowable... at least one fouling agent. This is not persuasive because Cooper '923 discloses the recycling the solvent as appropriate (see column 10, lines 27-28), which an ordinary artisan would remove the fouling agent to perform, and it would have been obvious to an

ordinary artisan that a hydride ion has a lower molecular weight than the disclosed solvents of Cooper.

**Conclusion**

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or

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access to the automated information system, call 800-786-9199

(IN USA OR CANADA) or 571-272-1000.



Edward M. Johnson  
Primary Examiner  
Art Unit 1754

EMJ

2 Jan 94